

Serial No.: 10/561,115

Case No.: BY0026

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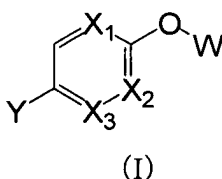
AMENDMENTS TO THE CLAIMS

Please amend the claims as follows. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-34 (Canceled)

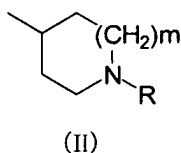
35. (New) A compound of the formula (I):



wherein:

X¹ is N, X² is N, and X³ is CH;

W represents a group of the formula (II):

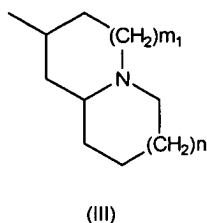


wherein m is 1;

R is selected from the group consisting of: a linear or branched lower alkyl group (excepting a methyl group), a cycloalkyl group having from 3 to 9 carbon atoms, an aralkyl group, and a heterocyclic group having from 3 to 8 carbon atoms (wherein the hetero ring has 1 or 2 nitrogen atoms or oxygen atoms),

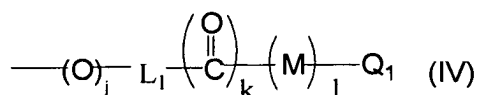
which is unsubstituted or substituted with a group selected from the class consisting of a cyano group, a hydroxyl group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxyl group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a carbamoyl group, a cycloalkyliminocarbonyl group and a trifluoromethyl group),

or R represents a group of the formula (III):



wherein m^1 indicates an integer of from 0 to 3; n indicates an integer of from 0 to 2;

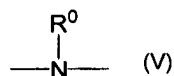
Y represents a group of the formula (IV):



wherein j , k and l each independently indicate 0 or 1;

L_1 represents a lower alkylene group having from 1 to 4 carbon atoms, or a single bond;

M represents an oxygen atom or a group of a formula (V):

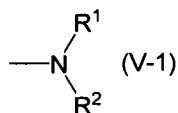


wherein R^0 represents a lower alkyl group having from 1 to 4 carbon atoms;

Q_1 is selected from the group consisting of: a linear or branched lower alkyl group, a cycloalkyl group having from 3 to 9 carbon atoms, a phenyl group, a 5-membered or 6-membered heteroaryl group, a heterocyclic group having from 3 to 8 carbon atoms (the hetero ring has 1 or 2 nitrogen atoms or oxygen atoms), a naphthyl group and a condensed-cyclic heteroaryl group,

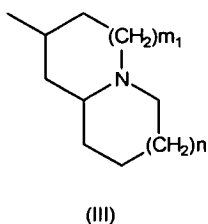
which is unsubstituted or substituted with a group selected from a class consisting of a cyano group, a hydroxy group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a lower alkylsulfonyl group, a cyclo-lower alkylsulfonyl group, a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a carbamoyl group, a

cycloalkyliminocarbamoyl group, a lactam ring, a trifluoromethyl group, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxy-carbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group) and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), or Q₁ represents a group of a formula (V-1):



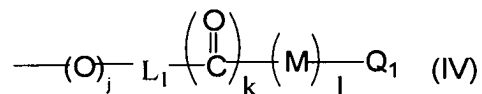
wherein R¹ and R² are the same or different, each representing a lower alkyl group or a mono- or di-lower alkylcarbamoyl group, or R¹ and R² together form, along with the adjacent nitrogen atom, a 3- to 9-membered lactam ring, a heterocyclic group having from 3 to 8 carbon atoms (the group has 1 or 2 nitrogen atoms or oxygen atoms), a 5-membered heteroaryl group, or a condensed-cyclic heteroaryl group; or a pharmaceutically acceptable salt thereof.

36. (New) The compound of Claim 35, wherein R in formula (II) is a cycloalkyl group having from 3 to 9 carbon atoms or a heterocyclic group having from 3 to 8 carbon atoms (the hetero ring has 1 or 2 nitrogen atoms or oxygen atoms), which is unsubstituted or substituted with a group selected from a class consisting of a cyano group, a hydroxy group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group, a mono-lower alkylaminocarbonyloxy group and a di-lower alkylaminocarbonyloxy group, or a represents a group of a formula (III):



wherein m₁ indicates an integer of from 0 to 3; and n indicates an integer of from 0 to 2.

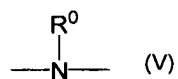
37. (New) The compound of Claim 35 wherein Y represents a group of the formula (IV):



wherein j, k and l each independently indicate 0 or 1;

L_1 represents a lower alkylene group having from 1 to 4 carbon atoms, or a single bond;

M represents an oxygen atom, or a group of a formula (V):



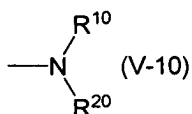
wherein R^0 represents a lower alkyl group having from 1 to 4 carbon atoms;

Q_1 is selected from the group consisting of: a linear or branched lower alkyl group, a cycloalkyl group having from 3 to 9 carbon atoms, a phenyl group, a 5-membered or 6-membered heteroaryl group, a heterocyclic group having from 3 to 8 carbon atoms (the hetero ring has 1 or 2 nitrogen atoms or oxygen atoms), a naphthyl group and a condensed-cyclic heteroaryl group,

which is unsubstituted or substituted with a group selected from a class consisting of a cyano group, a hydroxy group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a lower alkylsulfonyl group, a cyclo-lower alkylsulfonyl group, a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a carbamoyl group, a cycloalkyliminocarbamoyl group, a lactam ring, a trifluoromethyl group, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxycarbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group) and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), or the a group of the formula (IV) is a C_{1-4} lower alkylene group, a carbonyl group, ---C(O)---O--- , a $\text{---C}_{1-4}\text{---C(O)---}$, a $\text{---C}_{1-4}\text{---C(O)---O---}$, a $\text{---C}_{1-4}\text{---C(O)---N(R}^0\text{)---}$, $\text{---C(O)---N(R}^0\text{)O---}$, $\text{---O---C}_{1-4}\text{---}$ lower alkylene-, or a single bond.

38. (New) The compound of Claim 37 wherein Q_1 is selected from the group consisting of: a linear or branched lower alkyl group, a cycloalkyl group having from 3 to 9 carbon atoms, a phenyl group and a naphthyl group, which is unsubstituted or substituted with a group selected from a class consisting of a cyano group, a hydroxy group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a lower alkylsulfonyl group, a cyclo-lower alkylsulfonyl group, a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a carbamoyl group, a cycloalkyliminocarbamoyl group, a lactam ring, a trifluoromethyl group, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxy-carbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group) and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), or represents a 5- or 6-membered heteroaryl group having from 1 to 3 hetero atoms selected from a group consisting of an oxygen atom, a sulfur atom and a nitrogen atom, a heterocyclic group having from 3 to 8 carbon atoms and having from 1 to 3 nitrogen atoms or oxygen atoms in the ring, or a mono- to tri-cyclic condensed-cyclic heteroaryl group optionally having from 1 to 3 hetero atoms selected from a group consisting of an oxygen atom, a sulfur atom and a nitrogen atom in each ring.

39. (New) The compound of Claim 37 wherein Q_1 is a group of a formula (V-10):



wherein R^{10} and R^{20} together form, along with the adjacent nitrogen atom, a 3- to 9-membered lactam ring, a heterocyclic ring having from 3 to 8 carbon atoms (wherein R^{10} and R^{20} may have, apart from the adjacent nitrogen atom, 1 or 2 nitrogen atoms or oxygen atoms in the ring as the constitutive atoms of the hetero ring), a 5-membered heteroaryl group having from 1 to 4 nitrogen atoms in the ring, or a bicyclic condensed-cyclic heteroaryl group having from 1 to 3 nitrogen atoms or oxygen atoms in each ring.

40. (New) The compound of Claim 35 wherein -Y in formula (I) is selected from the group consisting of: a phenyl group, a pyridyl group, a pyridazinyl group, and a pyrimidinyl group, which is unsubstituted or substituted with a group selected from a class consisting of a hydroxyl group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a lower alkylsulfonyl group, a cyclo-lower alkylsulfonyl group, a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a cycloalkyliminocarbamoyl group, a lactam ring, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxycarbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group).

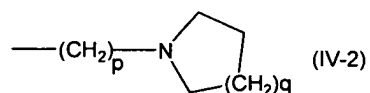
41. (New) The compound of Claim 35 wherein -Y in formula (I) is a bi- or tri-cyclic condensed ring having at least one phenyl group or pyridyl group in the ring, which may have therein 1 or 2 substituents selected from a class consisting of a hydroxyl group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a lower alkylsulfonyl group, a cyclo-lower alkylsulfonyl group, a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a cycloalkyliminocarbamoyl group, a lactam ring, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxycarbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group).

42. (New) The compound of Claim 35 wherein -Y in formula (I) is selected from the group consisting of: a furyl group, a thienyl group, a pyrrolyl group, an imidazolyl group, a pyrazolyl group, a thiazolyl group, a thiadiazolyl group, an isothiazolyl group, an oxazolyl group, an isoxazolyl group, a pyridyl group, a pyridazinyl group, a pyrimidinyl group, and a pyrazinyl group,

which may have in the ring thereof, 1 or 2 substituents selected from a class consisting of a hydroxyl group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a lower alkylsulfonyl group, a cyclo-lower alkylsulfonyl group, a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a cycloalkyliminocarbamoyl group, a lactam ring, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxycarbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group).

43. (New) The compound of Claim 35 wherein -Y in formula (I) is selected from the group consisting of: an oxetanyl group, a tetrahydrofuranyl group, a tetrahydropyranyl group, a pyrrolidinyl group, a piperidinyl group, a homopiperidinyl group, a morpholinyl group, and a homomorpholinyl group, which may have in the ring thereof, 1 or 2 substituents selected from a class consisting of a hydroxyl group, a lower alkyl group (the lower alkyl group is unsubstituted or substituted with a hydroxy group, a halogen atom or an amino group), a lower alkoxy group (the lower alkoxy group is unsubstituted or substituted with a halogen atom), a halogen atom, a mono-lower alkylaminocarbonyloxy group, a di-lower alkylaminocarbonyloxy group, a mono-lower alkylcarbamoyl group, a di-lower alkylcarbamoyl group, a cycloalkyliminocarbamoyl group, a lactam ring, a mono-lower alkylamino group, a di-lower alkylamino group, an alkanoyl group, an alkoxycarbonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), an alkanoylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group), and an alkylsulfonylamino group (the nitrogen atom in the group is unsubstituted or substituted with a lower alkyl group).

44. (New) The compound of Claim 35 wherein -Y in formula (I) is a group of the formula (IV-2):



wherein p indicates an integer of from 1 to 3; q indicates an integer of from 1 to 4.

45. (New) A compound which is selected from the group consisting of:

2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-isopropylpiperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-((3-methyl-1,2,4-oxadiazol-5-yl)phenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-(cyclobutyl)piperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-cyclohexylpiperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-cyclopropylpiperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-ethylpiperidin-4-yloxy)-5-(4-cyanophenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(pyrrolidin-1-ylcarbonyl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(dimethylcarbamoyl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(morpholin-4-ylcarbonyl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(phenoxy)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(3-quinoliny)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(5-indolyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1H-pyridin-2-on-1-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(piperidin-2-on-1-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(8-quinoliny)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-phenyl-4-hydroxypiperidin-1-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-methoxypyridin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-chlorophenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-trifluoromethylphenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(pyridin-3-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-methoxyphenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(dibenzofuran-4-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-cyclopentyloxy-pyridin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1H-pyridin-2-on-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1-cyclopentyl-1H-pyridin-2-on-3-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{2-(pyrrolidin-1-ylcarbonyl)pyridin-5-yl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-cyano-5-thienyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(morpholin-3-on-4-yl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(2-oxazolidin-3-yl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-methylpyridin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-fluoropyridin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(1H-pyridin-2-on-1-yl)phenyl}pyrimidine,

2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(methylsulfonyl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-acetylphenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-trifluoromethoxyphenyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(2-hydroxy-2-propyl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-ethylpyridin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(piperidin-1-ylcarbonyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(piperidin-1-ylmethyl)phenyl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(4-phenylpiperazin-1-ylmethyl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-cyanopyrimidin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1H-pyridin-2-on-4-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1-methyl-1H-pyridin-2-on-4-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-difluoromethoxypyridin-4-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1-difluoromethyl-1H-pyridin-2-on-4-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{4-(N-methyl-N-methoxycarbonylamino)phenyl}-
pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1-ethyl-1H-pyridin-2-on-4-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1-methyl-1H-pyridin-2-on-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1-ethyl-1H-pyridin-2-on-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-methylimidazo[1,2,a]pyridin-6-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(2-carbamoylpyridin-5-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{1-(2,2-difluoroethyl)-1H-pyridin-2-on-4-
yl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1,2,4-triazolo[4,3,a]pyridin-7-yl)pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-(1,2,4-triazolo[4,3,a]pyridin-6-yl)pyrimidine,
2-(1-cyclobutylpiperidin-4-yloxy)-5-(1-difluoromethyl-1H-pyridin-2-on-4-yl)pyrimidine,
2-(1-cyclobutylpiperidin-4-yloxy)-5-{1-(2-fluoroethyl)-1H-pyridin-2-on-4-yl}pyrimidine,
2-(1-cyclopentylpiperidin-4-yloxy)-5-{1-(2-fluoroethyl)-1H-pyridin-2-on-4-yl}pyrimidine,
or a pharmaceutically acceptable salt thereof.

46. (New) A pharmaceutical composition which comprises an inert carrier and the compound of Claim 35, or a pharmaceutically acceptable salt thereof.

47. (New) A pharmaceutical composition which comprises an inert carrier and the compound of Claim 45, or a pharmaceutically acceptable salt thereof.